

3. The apparatus of claim 1 wherein the heat exchanger fluidly connected to said source fluid input and a product fluid output, said heat exchanger comprising:

- at least one outer tube; and
- at least one inner tube.

4. The apparatus of claim 1 wherein said inner magnet and said outer magnet are axially positioned one to another.

5. The apparatus of claim 1 wherein the heat exchanger fluidly connected to said source fluid input and a product fluid output, said heat exchanger comprising:

- at least one outer tube; and
- at least one inner tube; and

6. The apparatus of claim 1 further comprising a magnetic coupling shell positioned between said inner magnet and outer magnet wherein said magnetic coupling shell seals steam that is being compressed.

7. The apparatus of claim 1 wherein the heat exchanger is disposed about said housing of said evaporator condenser.

8. The apparatus of claim 1 wherein said heat exchanger further comprising at least three inner tubes.

9. The apparatus of claim 8 wherein said at least three inner tubes are twined to form a substantially helical shape.

10. The apparatus of claim 1 wherein said evaporator condenser tubes further comprising packing inside at least one of said plurality of tubes.

11. The apparatus of claim 10 wherein said packing is a rod.

12. The apparatus of claim 1 wherein said evaporator condenser further comprising a steam chest fluidly connected to said plurality of tubes.

13. A distillation apparatus comprising:

- a source fluid input;
- an evaporator condenser apparatus;
- a heat exchanger fluidly connected to said source fluid input and a product fluid output;
- a compressor fluidly connected to said evaporator condenser comprising:
 - an inlet port;
 - an outlet port;

a shaft assembly wherein said shaft assembly comprising:

- a shaft; and
- at least one water fed bearing; and

a motor configured to drive said shaft, the motor comprising:

- an inner magnet;
- an outer magnet; and
- a drive motor.

14. The apparatus of claim 13 further comprising a stripper plate positioned between said inlet port and said outlet port.

15. The apparatus of claim 13 wherein said inner magnet and said outer magnet are axially positioned one to another.

16. The apparatus of claim 13 further comprising a magnetic coupling shell positioned between said inner magnet and outer magnet wherein said magnetic coupling shell seals steam that is being compressed.

17. A distillation apparatus comprising:

- a compressor fluidly connected to an evaporator condenser comprising:
 - an inlet port;
 - an outlet port;
- a stripper plate positioned between said inlet port and said outlet port;
- a shaft assembly, wherein the shaft assembly comprising:
 - a shaft; and
 - at least one water fed bearing; and
- a motor configured to drive the shaft, the motor comprising:
 - an inner magnet;
 - an outer magnet; and
 - a drive motor.

18. The apparatus of claim 17 wherein said inner magnet and said outer magnet are axially positioned one to another.

19. The apparatus of claim 17 further comprising a magnetic coupling shell positioned between said inner magnet and outer magnet wherein said magnetic coupling shell seals steam that is being compressed.

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